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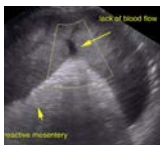
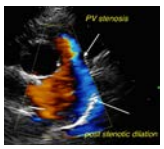
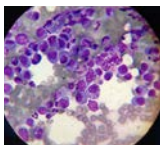
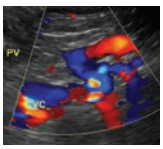

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1-800-838-4268 info@sonopath.com

PATIENT

Lucy Schumer

SPECIES

Canine

BREED

Chihuahua X

SEX

Spayed Female

AGE

13 Years

WEIGHT

10.1 Pounds

INTERPRETED BY

Lisa Carioto, DVM, DVSc, Diplomate ACVIM

IMAGING PERFORMED BY

Shari Reffi, CVT

HOSPITAL NAME

Newton Vet Hospital

REFERRING VET

Dr. Kim

INVOICE

39055

DATE

6/24/22

PRESENTING CLINICAL SIGNS

Grade IV systolic murmur, dyspneic, increased RR/RE, SPo2 95% in room air. Syncopal episodes, echo 4/29/22 DMVD acvim stage B1, mild PHT. Current meds: Pimobendan 1.25mg
Abnormal PE/Chem/CBC/UA Results: ECG and BW pending

ULTRASONOGRAPHIC EXAMINATION OF THE HEART

CANINE CARDIAC PARAMETERS	MR VMAX (m/s)	TR VMAX (m/s)	LA/AO (Boon method)	LA/AO (Heart Base; Swedish)	FS (%)	EF (%)	EPSS (cm)
NORMAL PARAMETER	4.5-5.5	<2.7	1.3	<1.6	28-40	40-100	<0.6
PATIENT	3.51 (underestimated; mvmt of patient)	2.92	1.6	1.4	31	61.5	0.12
CANINE CARDIAC PARAMETERS	**HR** (BPM)	**AV VMAX** (m/s)	**PV MAX** (m/s)	**BODY WEIGHT** kg	**LA** 2D long axis Base view (cm)	**LVIDd** Avg; 2D and m-mode short axis (cm)	**LVIDs** Avg; 2D and m-mode short axis (cm)
NORMAL PARAMETER	50-100	0.7-1.7	0.7-1.6				
PATIENT	163	0.90	0.72	4.59	2.31	2.25	1.55

Adapted from June Boon, Veterinary Echocardiography, 1998
Sisson D et al. JVIM 1991; 5: 232, and Jacobs et al. Am J Vet Res 1985; 46:1705

Echocardiographic findings

Note, performed following administration of furosemide

Mitral valve

- Moderate to marked myxomatous degeneration of both leaflets.
- Marked prolapse of both leaflets, with *partial rupture of septal leaflet*
- Marked mitral regurgitation.
- Marked left atrial enlargement
- Moderate left auricular enlargement
- Contractility appears exuberant
- LA: Ao ratio: vWithin normal limits to mildly increased of LA: Ao ratio
- LA normalized for BW (LAN = 1.4); Moderately enlarged
- LVIDd normalized for BW (LVIDND = 1.4); within normal limits (WNL)
- LVIDs normalized for BW (LVIDNs = 0.96); WNL

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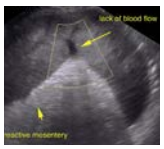
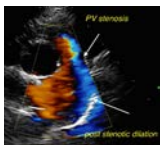
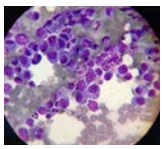
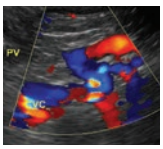

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Aortic valve

- Minimal changes, very mild thickening attributed to age-related changes. *No* vegetative (endocarditis) lesions
- Moderate aortic insufficiency

Tricuspid valve

- Moderate myxomatous degeneration of the tricuspid valve
- Moderate to severe prolapse (posterior leaflet more affected compared to septal).
- Marked tricuspid regurgitation
- Subjectively, the right atrium appears mildly enlarged (1.30 cm)
- No right ventricular or atrial enlargement.

Pulmonic valve

- No abnormalities
- No pulmonary insufficiency.
- Main pulmonary artery within normal limits.
- Pulmonary artery - bifurcation, no abnormalities.
- Pulmonary artery: aortic ratio within normal limits.
- No signs of heart worm.

Other

- No signs of pericardial or pleural effusion
- Pulmonary veins, subjectively, appear mildly dilated.
- *Pulmonary edema ("B lines") present
- No obvious signs of a mass.
- Hepatic veins do not appear congested

ULTRASONOGRAPHIC FINDINGS

- Myxomatous degeneration of the mitral (moderate to marked) and tricuspid (moderate) valves, ACVIM stage C (i.e. failure is present). ACVIM stage C refers to presence of signs of congestive heart failure. Lucy's acute decompensation (i.e., dyspnea) is most likely due to the *partial rupture of septal leaflet of the mitral valve.*
- Borderline to very mild pulmonary hypertension (depending on cut-off value used)
- Aortic insufficiency, possibly associated with mitral regurgitation and severe turbulence. Minimal age-related valvular changes.

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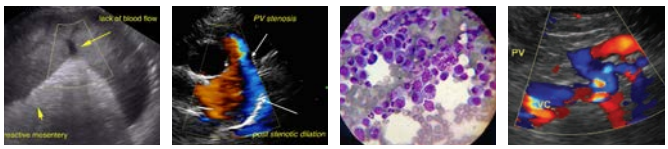

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INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Other suggestions/recommendations include:

- Evaluation of blood pressure
- pimobendan (Vetmedin); avoid compounded products if possible. Continue 1.25 mg PO every 12 hours.

  furosemide - Administer 2 mg/kg PO every 12 hours for 3 days – may require 2 mg/kg PO every 8 hours if resting (sleeping) respiratory rate not well controlled for 3 days, then try to decrease dose to 1.5 mg/kg PO every 12 hours for 3 days, and continue weaning dose until the minimum dose effective in controlling clinical signs is achieved.
- In 3 days, introduce spironolactone at 0.5-1 mg/kg every 12 hours. It is helpful in decreasing the dose of furosemide required to control one's cough and is potassium sparing. It also has anti-fibrotic effects.
- Depending on Lucy's clinical status, in 5 days, introduce benazepril 0.25 mg/kg PO every 24 hours for 2 days, then every 12 hours thereafter.
- An antitussive, codeine or hydrocodone, may help control a cough if present, if the latter is not associated with pulmonary edema
- Monitoring of the resting (sleeping) respiratory rate (RRR) is highly recommended once a day. The RRR should NOT EXCEED 30 breaths per minute (bpm). If the respiratory rate is greater than 30 bpm, *or* if there is a gradual increase (over a day or two) toward 30 bpm, the patient should be evaluated immediately for congestive heart failure and the appropriate treatment initiated.
- Other clinical signs clients should monitor for include coughing (particularly at night), fatigue, lethargy, decreased exercise tolerance (i.e., not being able to walk for as long before becoming tired, or "running out of breath" while playing, or going up and down stairs, as well as syncope (collapsing or fainting spells). Restlessness, or agitation during the night, or being unable to find a comfortable position to sleep are also very common clinical signs.
- Moderate salt restriction is suggested (between 0.4-0.5 grams/1000 kcal of food). Monitor salt content in treats.
- Blood work PCV/TS, renal profile, SDMA and arterial blood pressure, are recommended 10-14 days after initiation of benazepril.
- Blood work, CBC, serum biochemical profile, including a SDMA, and arterial blood pressure, are recommended at least twice a year to monitor renal parameters. If cost prohibitive, a PCV/TS may be performed instead of a full CBC.
- Re-evaluation of an echocardiogram is suggested in 2-3 months, or sooner depending on clinical signs.

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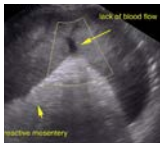
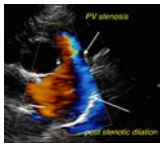
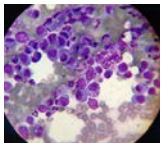
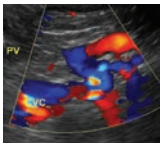

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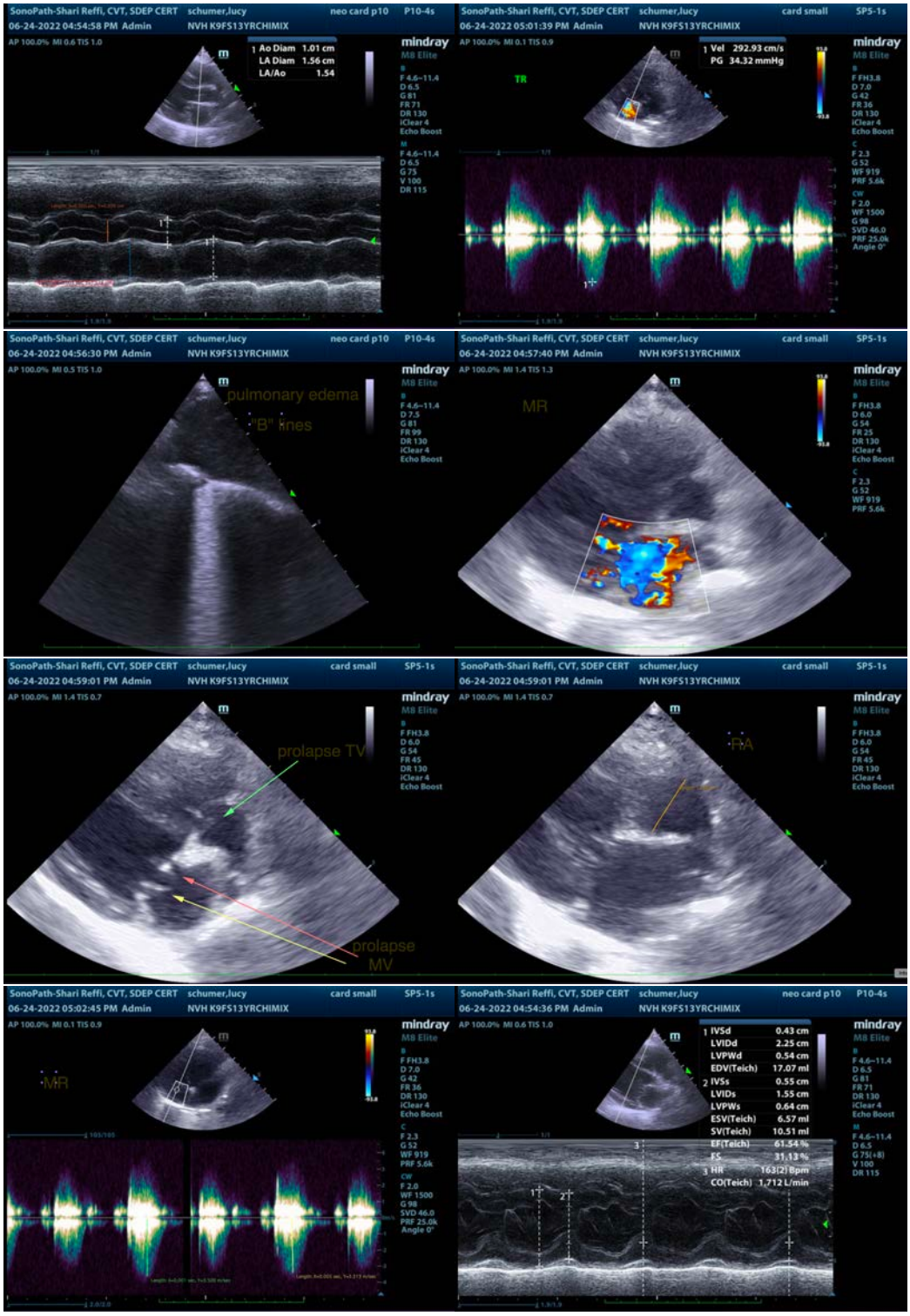

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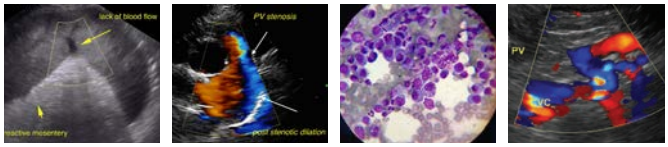

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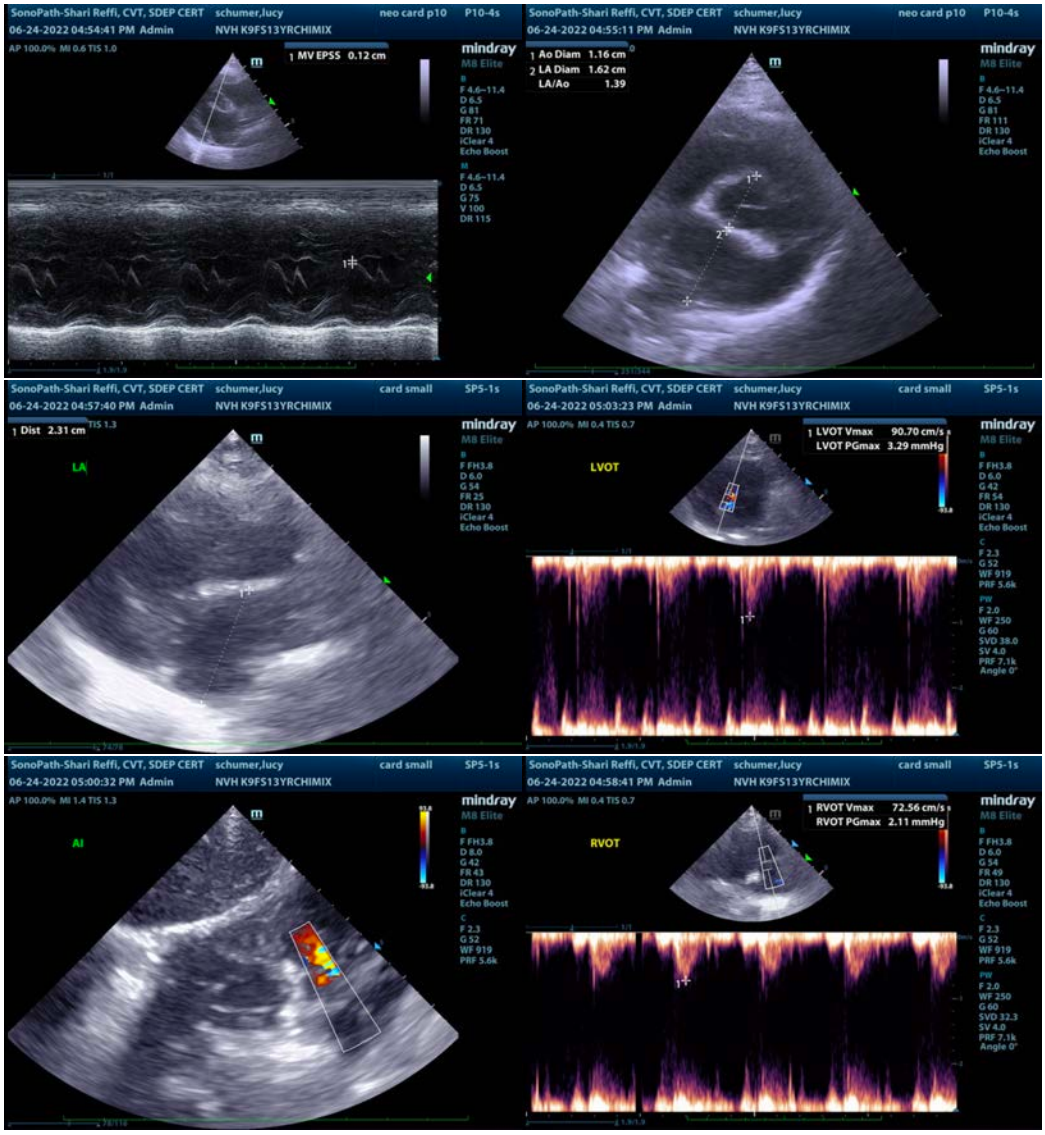

The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

Thank you for this referral. If the clinical or image interpretation does not parallel your findings or if I can be of any further assistance please contact me.

Lisa Carioto, DVM, DVSc, Diplomate ACVIM

Lisa.Carioto@sonopath.com